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THE ELECTROTECHNICAL COMMUNICATIONS INSTITUTE IN MOSCOW

1. The Electrotechnical Communications Institute, located on Aviamotornaya ulitsa, Kalininskiy Rayon, Moscow (see sketch, page 7), was subordinate to the Ministry of Higher Education, except for the period from 1946 to 1948 when it was under the Ministry of Communications Equipment/. 50X1-HUM

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2. The course of study for students enrolled in the radio-engineering course was as follows:

A. First Year

(1) Marxist-Leninist theory: A three-semester course, with 150 hours of theory and 100 hours of practical application. The first semester was devoted to the study of philosophy and the other two to study in Party history and the classical works of Marx, Engels, Lenin, and Stalin.

(2) English-and German-language courses were begun during the first year and extended over a seven-semester period, with 50 hours of study per semester.

(3) Military training: There were four courses of study, including military tactics and strategy, held over an eight-semester period, for male students only. 50X1-HUM students were required to have a knowledge of telegraphy and bivouacking, and were graduated from the course as reserve lieutenants.

(4) Higher mathematics: This course had four semesters of study, with about 200 hours of theory and about 200 hours of practical application.

(5) Physics: The physics course, which began with the second semester, included 180 hours of theory and 180 hours of practice.

(6) Descriptive geometry: This course was given during the first semester, with 60 hours of theory and some 40 hours of practical application.

(7) Drafting: A three-semester course, with 150 hours of study.

(8) Chemistry: A one-semester course, including sixty hours of theory and eight or ten laboratory projects involving about 40 hours of work.

(9) Metallurgy: A one-semester course, including 70 hours of theory and 70 hours of work in machine shops.

(10) Mechanics: A two-semester course, begun in the second semester; the course included 120 hours of theory and laboratory work and about 100 hours of practical training.

B. Second Year

(1) Political economy: A two-semester course, including 120 hours of practical application.

(2) Machine theory: A one-semester course with about 20 hours of laboratory work.

(3) Construction of machinery: A one-semester, 60-hour study course with about 30 hours of laboratory work. Work project assigned to the class calculate and construct a Morse telegraph apparatus. 50X1-HUM 50X1-HUM 50X1-HUM

(4) Strength of materials: A two-semester course, with 140 hours of theory and 160 hours of laboratory research. 50X1-HUM

(5) Theory of electrotechnics: A four-semester course, begun in the fourth semester, which included 220 hours of theory and 120 hours of practical training; the latter included about 100 hours of laboratory work.

(6) Internal combustion engines: One semester, with 60 hours of theory and 30 hours practical training.

C. Third year

(1) Electrical measurements: One semester, with 60 hours of theory and 40 hours of laboratory work.

(2) Electrotechnical materials: One semester, with 50 hours of theory and 30 hours of laboratory work.

(3) Electric apparatus: A two-semester course, including 150 hours of theory and 80 hours of laboratory.

(4) Electronic tubes: One semester, including 80 hours of theory and 80 hours of laboratory work.

(5) Radiotechnology: A three-semester, 160-hour course, including 40 hours of problem solving.

(6) Radiotechnical measurements: A two-semester course, including 100 hours of theory and 60 hours of laboratory work.

(7) Low-frequency amplifiers: A one-semester course, with 60 hours of theory and 40 hours of laboratory work. The class project assigned was to calculate a low-frequency, 100-watt amplifier.

(8) Radio broadcasting: A three-semester course, with 200 hours of theory and 60 hours of laboratory. The project completed during the course consisted of a large radio station.

(9) Mechanics of radio transmitters: A three-semester course, with 200 hours of theory and 100 hours of laboratory work. The course included one month of practical training in a broadcasting station and a work project dealing with a small telephone-telegraph transmitter.

(10) Mechanics of radio receivers: A three-semester course, with 200 hours of theory and 100 hours of laboratory research. It included one month's training in a radio receiving station and building a first-class short-wave receiving set to operate between 20- and 70-meter wave lengths.

(11) Telegraph-telephone communications: One semester, with two separate courses consisting of 120 hours of theory and 60 hours of laboratory work.

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D. Fourth year

In addition to pursuing courses of study begun during the previous term, the students were taught the following subjects:

(1) Current flow in the radio tube: A two-semester course, with 100 hours of theory and 30 hours of laboratory work.

(2) Propagation of radio waves: A two-semester course, with 120 hours of theory and 100 hours devoted to laboratory research.

(3) Organization and planning of enterprises: A one-semester course, with 50 hours of theory and 30 hours devoted to the solution of problems.

(4) Electro-acoustics: A one-semester course, with 70 hours of theory and 20 of laboratory research.

(5) Television: A two-semester course, begun during the eighth semester; it was designed for students who specialized in advanced television. It included 180 hours of theory and 60 hours of laboratory work.

E. Fifth year

The following subjects were taught during the fifth year:

(1) Radio networks: A one-semester course, with 70 hours of theory and 30 hours of problems.

(2) Principles of radio antennas: A two-semester course, with 120 hours of theory and 50 hours of laboratory.

(3) Economics of communications: A one-semester course, with 70 hours of theory and 20 hours devoted to problems.

(4) Security techniques: A one-semester course, with 50 hours of practical training.

The students devoted the second semester of the fifth term mainly to work on a specific project; four months were alloted to the project development and research, under the guidance of a professor-consultant, and two months were spent in practical training at a work-center related to the chosen project. The students' theses were first reviewed by a specialist and then turned over to a state examining board, whereafter the student appeared before the board to support his proposition. The examining board was generally composed of school professors and doctors of theoretical science from the Institute of Scientific Investigation. /sic/.

3. The following additional research opportunities, moreover, were made available to students at the Institute: (a) The faculty organized non-political scientific study circles, which students could attend free of charge in order to pursue some specialized course of study [redacted] and (b) the professors in each branch of learning held monthly meetings for the purpose of stimulating research on scientific problems. At the conference, student members of the scientific study circles, working either individually or in groups, selected topics from a list prepared by the faculty and wrote theses. The subjects generally dealt with scientific matters or non-resolved industrial problems and were based on inquiries stemming from factories or the Institute for Scientific Investigation. The theses were developed under the professors' guidance and, when complete, were reviewed and debated pro and con

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by the faculty and the student groups. These research study courses, moreover, were of considerable practical value since many students obtained invention patents on the basis of their theses.

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4. The members of the faculty were, without exception, well-qualified individuals with outstanding scientific knowledge in their specialized fields, and who were able to communicate their ideas to the students. The students, in turn, were expected to know their subject matter thoroughly, to have an exact knowledge of methods and techniques, and a profound knowledge of theory as derived from the scientific and ideological study programs referred to above. Intelligence and studiousness were prerequisites for students who attended the technical schools: they were required to perform exhaustive research on scientific phenomena, such as cosmic rays, for example. higher education in the technical schools somewhat difficult. prior to 1947 the directors of the technical schools were engineers who were not obliged to teach classes and had, therefore, no special teaching qualifications. In accordance with a new regulation instituted in 1947, however, the directors assumed teaching duties and the minimum requirement was a Science Candidate degree. Nadierdin (fnu), one of the directors at the Electrotechnical Communications Institute had obtained his science degree.

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5. The faculty included the following Soviet professors:

Pistolkors	(fnu)	- an antenna expert
Nadenenko	(fnu)	- an antenna expert
Terentev	(fnu)	- a radio broadcasting expert
Goron	(fnu)	- specialist in radio receiving
Ponomarev	(fnu)	- specialist in radio receiving
Chikin	(fnu)	- an expert on amplifiers
Finikov	(fnu)	- a mathematician
Furduyev	(fnu)	- an acoustics and physics expert
Katayev	(fnu)	- a television expert

General Observations in the Institute

6. the mechanical aspects of the work related to studies, had given practical training in radio communications

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The theoretical and technical training at the Institute was adequate, and the specialized study plan, i.e., the scientific study circles (see paragraph 3 above)

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was quite ample. students had likewise derived material benefit from the monthly conference sessions (see paragraph 3 above).

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The equipment in the Institute was good and the laboratories were well equipped with modern apparatus and thermo-electric appliances.

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7. [redacted]

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there were two or three Rumanians and a few Bulgarian, Yugoslav, Polish, and Mongolian students at the school [redacted]

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[redacted]

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Sketch Showing Location of the Electrotechnical Communications Institute in Kalininskiy Rayon, Moscow

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